

layered in the order shown. Subsequently, the binding **1500** may be folded around the edges of the assembly and a seam formed around the edge. The fastening element **1210** may be attached to the short strap **1640b** by the short strap through the fastening element, folding the short strap, and sewing a seam parallel to a side of the fastening element.

An optically clear window **720** may be used in conjunction with the fabric compliant element, as described above.

A method of monitoring a condition of a patient may include inserting an optical sensor into a patient interface, and applying the patient interface to the patient. A measurement may be obtained with the optical sensor of a parameter related to the condition of the patient. Then, the patient interface may be removed from the patient, and the sensor may be removed from the patient interface. In some embodiments, the patient interface may be disposed of, and the optical sensor may be reused in a new patient interface to obtain an additional measurement.

In some situations, a sensor check of the optical sensor may be needed or preferred. In such cases, before applying the patient interface to the patient and prior to obtaining the measurement with the optical sensor, a sensor check of the optical sensor may be performed. Thereafter, the patient interface, containing the sensor, may be adhered to the patient. The sensor check may be performed while a transparent liner is disposed on the contact surface of the patient interface. After the sensor check is performed, the transparent liner may be removed, and the adhesive on the contact surface adhered to the patient.

While there may have been described certain embodiments, it should be understood that the various features and functions of the invention may be used in various combinations and permutations. Sizes, materials, and the like are described by way of example only and are not to be considered limiting. The invention is to be defined by the meaning of the attached claims, including all equivalents.

What is claimed is:

1. A patient interface for a reusable optical sensor, the patient interface comprising:

a compliant element defining a pocket having an upper wall and a lower wall and configured to removably receive the reusable optical sensor, the lower wall of the pocket defining an opening therethrough, the compliant element including a first wing and a second wing configured for conformational placement on a patient's body; and a rigid guide component disposed along at least a portion of an outer surface of the upper wall of the compliant element for guiding the reusable optical sensor into the pocket;

wherein the compliant element comprises a contact surface and the opening extends from inside the pocket through the lower wall to the contact surface.

2. The patient interface of claim 1, wherein the compliant element comprises a material selected from the group consisting of open celled foam, closed cell foam, natural rubber, synthetic rubber, and thermoplastic elastomer.

3. The patient interface of claim 2, wherein the compliant element comprises a moisture impervious surface.

4. The patient interface of claim 1, wherein at least one of the wings defines a ventilation opening therethrough, providing ventilation to the patient's skin when in use.

5. The patient interface of claim 1, wherein the compliant element is molded to define a curved shape and is sized and configured to conform to a portion of a patient's body selected from the group consisting of a deltoid, an upper arm, a calf, a thigh, a forearm, an upper back, and a lower back.

6. The patient interface of claim 1, wherein the compliant element comprises a nose disposed at an end of the compliant element remote from an open end of the pocket.

7. The patient interface of claim 6, wherein the nose is angled toward the contact surface.

8. The patient interface of claim 6, wherein the nose has a tapered profile.

9. The patient interface of claim 1, further comprising at least one upper wall protrusion to bias an optical sensor disposed in the pocket toward the lower wall of the pocket.

10. The patient interface of claim 1, further comprising at least one lower wall protrusion proximate an entrance of the pocket to facilitate retention of the optical sensor in the pocket.

11. The patient interface of claim 1, further comprising an adhesive layer disposed on at least a portion of the contact surface of the compliant element.

12. The patient interface of claim 11, wherein the adhesive layer comprises a transfer adhesive.

13. The patient interface of claim 11, further comprising a removable liner proximate the adhesive layer.

14. The patient interface of claim 13, wherein the removable liner is optically transparent.

15. The patient interface of claim 1, further comprising an optically clear window layer aligned with the lower wall opening.

16. The patient interface of claim 15, wherein the optically clear window layer further comprises an adhesive surface along at least a portion thereof.

17. The patient interface of claim 15, wherein the optically clear window layer comprises an optical tape.

18. The patient interface of claim 1 wherein the pocket is sized to receive the sensor with a sliding interference fit.

19. The patient interface of claim 1, wherein the rigid component comprises a material selected from the group consisting of a plastic, a metal, and a composite material.

20. The patient interface of claim 1, wherein the compliant element comprises fabric.

21. The patient interface of claim 20, further comprising a first strap attached to one of the two wings, the first strap being configured for encircling a portion of a patient's body.

22. The patient interface of claim 21, further comprising a fastener attached to another of the two wings, adapted to receive and secure the first strap.

23. The patient interface of claim 22, wherein a second strap is attached to the other of the two wings and the fastener is attached the second strap.

24. The patient interface of claim 21, wherein the first strap comprises a hook-and-loop fastener.

25. The patient interface of claim 20, wherein the lower wall of the pocket comprises a nonslip material.

26. A method of monitoring a condition of a patient, the method comprising the steps of:

in a patient interface, the patient interface comprising:

a compliant element defining a pocket having an upper wall and a lower wall and configured to removably receive the reusable optical sensor, the lower wall of the pocket defining an opening therethrough, the compliant element including a first wing and a second wing configured for conformational placement on a patient's body; and

a rigid guide component disposed along at least a portion of an outer surface of the upper wall of the compliant element for guiding the reusable optical sensor into the pocket;